Water today, water tomorrow

Inputs, outputs and outcomes – what should price limits deliver? A discussion paper

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About this document

In 'Beyond limits – how should prices for monopoly water and sewerage services be controlled?', which we published in July 2010, we explained how and why we are reviewing the way we set price controls.

This is one of a series of discussion papers on a specific aspect of price setting.

The aim of these discussion papers is to obtain stakeholders' views and to inform more debate on approaches and tools as the project progresses. They are not intended as a definitive statement of our views or as a formal consultation. Details of how to engage in the discussion are set out in chapter 6.

We will use the feedback we receive on these documents to inform our overall approach to price setting. We will formally consult on our next price setting methodology, based on the approach we adopt, in 2012.

In 'Beyond limits' we said: "We are keen to focus more on incentivising outcomes, rather than outputs or inputs."

This discussion paper considers why such an approach may be beneficial to customers and deliver sustainable water. It suggests a possible framework within which we could draw up a methodology for:

- developing our approach to accountability for delivering outcomes; and
- incentivising the companies through the price review process.

Any such framework must take account of the different rate at which market mechanisms are introduced along the value chain. It must also tie in with the risk-based approach we are developing on regulatory compliance.

The paper draws on discussions with company representatives and workshop discussions with the quality regulators and other stakeholders, and with members of our future regulation advisory panel. We are particularly grateful for input we received from stakeholders at our workshop on 17 February 2011.

Contents

Key messages

- Our role is to ensure that the monopoly water and sewerage companies in England and Wales provide their customers with a good quality service at a fair price.

- Since privatisation in 1989, our approach to achieving this has involved setting an extensive range of detailed outputs the companies must deliver and monitoring their progress closely.

- But this approach may no longer deliver the outcomes that customers want, need and are willing to pay for in the best and most proportionate way, given the challenges now facing the water and sewerage sectors. For example, the companies have told us that it constrains them from choosing different, better, solutions.

- As we indicated in 'Beyond limits', we think we should focus more on ensuring the companies deliver the broader outcomes that customers and wider society value rather than prescribing detailed inputs and outputs.

- Such a framework could comprise:

  – a small number of outcomes that we hold the companies accountable for delivering (such as reliable and safe service, customer satisfaction, environmental quality, compliance with legislative requirements and fair, transparent and acceptable bills);
  – performance indicators that measure progress towards these outcomes; and
  – specific outputs only where necessary (for example, where there is a risk of a company performing poorly).

- To develop such an approach we would clearly need to decide how best to arrive at the outcomes we want to focus on. We need to decide:

  – the level at which they should be set;
  – who needs to be involved in agreeing them; and
  – how to deal with the delivery of outcomes that are not wholly the company's responsibility.

- We also need to consider the impact this approach will have on risk and the need for consistency with our work on:

  – incentives;
  – customer engagement;
  – the form of price control; and
  – cost assessment and cost recovery.

1. Introduction

Most people in England and Wales receive their water services from one of 22 licensed regional monopoly suppliers and their sewerage services from one of 10 licensed regional monopoly suppliers. Only very large business customers are able to choose their supplier.

Since the water and sewerage sectors were privatised in 1989, it has been our role to regulate the monopoly companies. We have a legal duty to protect consumers' interests, wherever appropriate by promoting effective competition, while ensuring efficient companies can carry out and finance their functions.

One of the ways we deliver our duties is to review and set price limits based on an investment and service package that customers receive from their water company. We currently review price limits every five years. We completed the last review in November 2009, which covers the period from 2010 to 2015.

These investment and service packages have included an extensive and increasingly detailed set of outputs that we hold the companies accountable for delivering, along with assumptions about the capital and operational expenditure needed to achieve them.

The price limits we have set on this basis have provided clarity for the companies, as well as for customers, investors and other regulators. But it is now more than 20 years since privatisation, and we think it is timely to consider whether our current highly prescriptive approach really delivers what customers and wider society need, want and are willing to pay for in the best and most proportionate way.

This document explores:

- what we mean by inputs, outputs and outcomes;
- why we think moving to a more outcome-focused approach would be better for customers and sustainability; and
- what such an approach might look like, in outline form.

In developing an outcome-focused approach, we will need to consider the interactions it will have on other aspects of price setting, including:

- risk and incentives;
- customer engagement;
- the form of price control; and
- cost assessment and cost recovery.

We also need to ensure that our approach is consistent with the risk-based approach we are developing as part of our regulatory compliance project and complements any future changes to the structure of the sectors.

We welcome your views on any of the issues discussed in this paper, in particular the questions outlined in chapter 6.

2. What do we mean by inputs, outputs and outcomes?

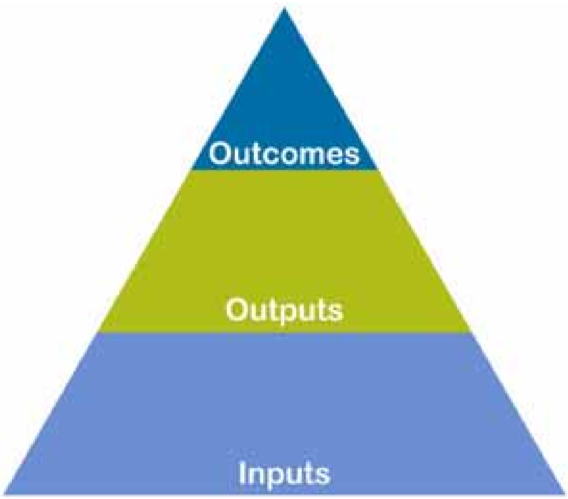
1. In this chapter, we define what we mean by inputs, outputs and outcomes in this context.

2. We see a hierarchical relationship between inputs, outputs and outcomes.

- **Outcomes** are the things that customers and society value.
- **Outputs** are specific things that the companies deliver to (help to) achieve those outcomes.
- **Inputs** are the resources the companies use to deliver those outputs.

3. All the **inputs** that a company needs should be traceable, through the **outputs** they will deliver, to **outcomes** that customers and society value. The diagram below illustrates this hierarchy.

Figure 1 The hierarchy of inputs, outputs and outcomes



4. We think that economic regulation must focus on incentivising the companies to deliver efficiently the outcomes that customers and society value. The regulator should only concern itself with inputs or outputs to the extent that it is necessary to incentivise outcomes. The companies, on the other hand, will be keenly focused on outputs and inputs. Their core competence is managing these aspects of their business.

5. Given this hierarchy, we start by defining what we mean by outcomes before explaining what we mean by outputs and inputs.

2.1 Outcomes

6. Outcomes are the higher-level objectives that company actions, activities and achievements are intended to help deliver. They represent what customers and society really value.

7. At our future price limits workshop on 17 February, stakeholders suggested that outcomes could include:

- a reliable service to provide clean drinking water and take away wastewater:
- customer satisfaction;
- value for money; and
- environmental sustainability (for example, a good quality water environment).

8. Other examples might include:

- providing safe drinking water;
- providing sewerage services consistent with maintaining public health;
- reducing carbon emissions;
- fair, transparent and acceptable bills for end-customers;
- compliance with legal requirements; and
- sustainable use of water resources.

9. Outcomes are generally continuous, long-term requirements that do not necessarily fit into one price control period. In the strategic direction statements that the companies produced as part of the 2009 price review, the companies identified some outcomes that their customers care about, and which they aim to deliver over the next 25 years. We have highlighted some of these in the text box below.

Examples of outcomes identified in the water companies' strategic direction statements

Anglian Water

"Our key priorities for the next 25 years are to:

- Increase the resilience and reliability of our water and wastewater services.
- Secure and conserve water resources.
- Anticipate and invest for growth in our region.
- Improve the environment in our region.
- Mitigate and adapt to climate change impacts.
- Improve our efficiency and flexibility.
- Keep bills at current affordability."

Severn Trent Water

The company identified the following eight key strategic intentions (KSIs) for the next 25 years.

- KSI 1 – providing a continuous supply of quality water.
- KSI 2 – dealing effectively with wastewater.
- KSI 3 – responding to customers' needs.
- KSI 4 – minimising our carbon footprint.
- KSI 5 – having the lowest possible charges.
- KSI 6 – having the right skills to deliver.
- KSI 7 – maintaining investor confidence.
- KSI 8 – promoting an effective regulatory framework.

Cambridge Water

In its strategic direction statement, the company identified the following as having the greatest impact on its customers, assets and the environment.

- Satisfying the growth in demand from new customers.
- Continuing the provision of safe, clean drinking water.
- Dealing with the effect on supply and demand from climate change.
- Reducing the company's carbon emissions.
- Maintaining the serviceability of the assets.
- Satisfying customer expectations for a consistent supply of water at an appropriate pressure.
- Satisfying the expectations of the providers of finance.
- Balancing the price charged for water and its value to customers and the environment.
- Competition in and for the market.
- Providing a water-supply system resilient to emergencies and incidents.
- Keeping bills as low as possible against a background of upward cost pressures.

10. We recognise that customers and society may not value compliance with legal requirements for its own sake. We have suggested it as an outcome on the basis that legislation is a proxy for societal values, as expressed through the democratic process. While we have our own regulatory powers to enforce compliance with provisions of, for example, the Water Industry Act 1991, Competition Act 1998, Enterprise Act 2002 and Articles 101 and 102 of the Treaty on the functioning of the European Union, compliance with many other pieces of legislation (such as health and safety, security, resilience, drinking water quality and environmental standards) is ultimately a matter for the quality regulators or other competent authorities.

11. Within the category of environmental legislation, we note that there are some legal requirements where compliance is primarily the responsibility of water and sewerage companies, for example the Urban Waste Water Directive. For others, the extent to which the costs of meeting the requirement (such as good ecological status under the Water Framework Directive) are met by water customers is largely a matter for Government, reflecting the extent to which it chooses to apply the 'polluter pays' principle, or otherwise prevent or reduce pollution at source.

12. Outcomes are often not always wholly within a company's gift. For example, customers in one company's area may become less satisfied with that company because they have heard of a problem in another's area, or with the company that provides the customer's sewerage service if the two are different.

13. Outcomes are generally multi-dimensional. So, they can be difficult to measure through a single metric that meaningfully reflects the extent to which it is being delivered. Each outcome will have different aspects that contribute to it. For example, customer satisfaction will reflect:

- the quality of water and sewerage service provision;
- customer service and value for money; and
- wider perceptions of the sectors.

14. Similarly, sustainability will reflect not only the quality of the water environment but also the sustainability of the solutions used to deliver it (for example, the carbon footprint of new schemes in construction and operation).

15. This means that there may be tensions between different outcomes, meaning that it may be necessary to make trade-offs. As another example, delivering sustainability may mean that customers' bills have to rise, which has an impact on the overall acceptability of those bills.

16. In general, outcomes are not achieved by means of a single, linear and finite process. If a company seeks to achieve an outcome, it may need to do different things at different times, adapting to changing circumstances.

17. Outcomes are likely to be common across the sectors because they reflect things at a high level that customers and society value. But the emphasis that different companies place on different outcomes, and the way in which they resolve and trade off the tensions between them, may vary. The things that customers and society value highly in some parts of the country may be seen as less important in others.

18. Also, the way in which different companies deliver the same outcome may vary. They may emphasise different aspects of the same outcome. And the steps the companies take to deliver outcomes may be very different. So, one company may decide that the best way to create a sustainable water environment is to build an end-of-pipe solution, while another may decide to work with polluters to reduce pollution at source. Each company will need to engage their customers in developing these approaches.

2.2 Outputs

19. Outputs are the observable and measurable activities, actions or achievements that a company needs to deliver to bring about the outcomes that customers and broader society value. It is possible to specify outputs on a spectrum that ranges from a high level (related to specific achievements) to a low level (related to specific activities).

20. At our future price limits workshop on 17 February, our stakeholders identified the following outputs:

- compliance with discharge consents, which is related to the outcomes of providing a safe service and legal compliance;
- compliance with drinking water quality regulations, which is [again] related to the outcomes of providing a safe service and legal compliance; and
- reducing service interruptions, which is related to the outcome of providing a reliable service.

21. Other examples of relatively low-level outputs might include:

- delivering specific schemes, such as a new water treatment works or relining a specified number of mains , which could relate to a number of outcomes; and
- completing specific activities, such as water efficiency campaigns or a programme of replacing lead pipes, which, again, could relate to a number of outcomes.

22. Examples of relatively high-level outputs might include:

- reducing the instances of sewer flooding, which relates to the outcome of providing a safe service;
- maintaining or restoring the serviceability of assets, which relates to the outcomes of providing a reliable and safe service and legal compliance;
- removing pesticides from drinking water, which relates to the outcomes of safe supply of drinking water and legal compliance;
- installing meters, which relates to the outcome of customer satisfaction; and
- a new billing system, which, again, relates to the outcome of customer satisfaction.

23. Outputs are more easily measured and monitored than outcomes, and are more likely to be within a company's control. In general, they do not reflect things that customers and society value in themselves, but they may contribute to achieving those things. It may be possible to achieve an outcome by means of different sets of outputs. But it is unlikely that achieving any one output on its own would ensure the achievement of an outcome. It should be possible to link outputs to the outcomes that they are designed to achieve, as we have done with the examples above.

2.3 Inputs

24. Inputs are the resources that a company uses to carry out its activities or to deliver particular outputs. Examples of inputs include:

- the amount of money a regulated firm spends on a particular activity or delivering a particular output (such as how much the company spends on water or sewage treatment, the cost of building a reservoir, or the investment needed to comply with drinking water or environmental standards);

- the number of people it employs on a particular activity (such as those employed on mains relining or replacement, operating a sewage treatment works, or building a new water treatment works); and
- the amount of product that a company has used to carry out a particular activity or delivering an output (such as the length of pipe, number of valves, number of new meters, or new billing software).

Table 1 Inputs, outputs and outcomes – a summary

Measure	What it is	Examples
Outcomes	• Higher-level objectives than company actions, activities and achievements are intended to help deliver. • Things that customers and society value. • Delivered through outputs.	• Reliability/availability/safety of supply. • Customer satisfaction. • Environmental sustainability. • Fair, transparent and acceptable bills. • Compliance with legislative requirements. • Reducing carbon emissions.
Outputs	• Observable and measurable activities, actions and achievements needed to deliver outcomes. • May be high level or lower level. • Should help to achieve outcomes.	• Reductions in sewer flooding. • Maintaining/restoring serviceability. • Pesticide removal. • Meter installation. • New billing system. • Compliance with discharge consents. • Reducing service interruptions.
Inputs	• Resources an organisation needs to deliver outputs. • Includes money, people and products.	• Money spent on reducing sewer flooding (opex/capex). • Number of people employed on operating a water/sewage treatment works. • Length of new pipe needed to comply with drinking water standards.

3. Why might a more outcome-focused approach be better for customers?

25. Adopting an outcome-focused approach to regulation means that we focus on incentivising the companies efficiently to deliver what customers and society need, want and are willing to pay for. At present, we hold the companies to account for delivering outputs rather than outcomes. (We describe our current approach in appendix 1.)

26. A more outcome-focused approach would mean not prescribing or holding the companies to account for the way in which they deliver outcomes, but allowing them scope to find alternative approaches. So, the companies would be incentivised to find the best way to deliver outcomes, with the freedom to choose between different outputs to achieve them.

27. Recently, several studies, including our own review of the 2009 price review, have suggested that the current way of doing things:

- has become very complex, data-intensive and time-consuming (for the companies and regulators);
- encourages the companies to have a short-term focus and be unresponsive to the views of customers, with a tendency to wait for regulators (quality or economic) to tell them what to do;
- offers little scope for the companies to innovate and find new ways of delivering outcomes; and
- treats the companies the same irrespective of performance.

28. Stakeholders are concerned that our current approach tends to focus the companies' attention on delivering a set of detailed and prescriptive outputs rather than thinking strategically about how they can best:

- deliver the right outcomes for customers;
- develop new approaches; and
- deal with new challenges and circumstances.

29. The text box below summarises some of the concerns stakeholders have expressed. Appendix 2 explores these concerns in more detail.

Concerns about our current approach

"an over-riding aim should be to simplify … by focusing on outcomes … rather than the existing system which does not seem targeted, confuses the parties, gives a false sense of security to regulators and is costly to all" – **Indepen, 'Changing the bathwater: a discussion paper on water policy', May 2010.**

"…in general we welcome Ofwat's move towards outcome-focused regulation, which will reward overall outcomes rather than set and monitor a large number of intermediate inputs and outputs" **– Water UK, response to Ofwat discussion papers, January 2011.**

In its evidence to the Defra-led review of Ofwat in October 2010, the **Consumer Council for Water** called for Ofwat to set "key outcome measures including customer satisfaction with … basic service and … with value for money and … complaint handling."

"Regulation encourages short-term solutions."
"…highly prescriptive output-setting….does not provide scope for innovation."
"…a complex and detailed price-setting process….diverts regulatory and company focus from key strategic issues."
"…there is limited scope for customers' preferences to have a real impact on all the outputs companies deliver" **– Severn Trent Water, 'Changing Course', April 2010.**

"Good performers should be rewarded by having a lighter touch regulation. This could be through less of a requirement to justify business plans and less reporting on an annual basis" **– Portsmouth Water, 'Future price limits – response to the discussion papers, January 2011.**

Other companies have made similar observations in our discussions with them about our regulatory approach. For example, **Thames Water** was of the view that simplifying current requirements and being less prescriptive would allow the companies to be more innovative and outcome-focused. **Veolia Water** noted the need to move away from ever-increasing detail and micro-management, but also noted the huge cultural change that this would imply for Ofwat.

30. A more outcome-focused approach would encourage the companies to concentrate more on the things that people value. In turn, this would encourage them to understand better the needs and wants of their customers and constantly to review the best way to achieve those. Rather than producing a business plan for the price control review, and then delivering the outputs in that plan, the companies would need to take account of changing circumstances, new evidence and new approaches to find the best way to deliver outcomes.

31. Focusing more on outcomes would also encourage efficiency. In particular, it should bring allocative[1] and dynamic[2] efficiency benefits. Some companies have told us that our specification of outputs has been a barrier to trading water, for example, or developing catchment management schemes. They have also told us that their being held to account for delivering particular outputs has stopped them from using different, more efficient or sustainable ways of delivering the same outcome.

32. Adopting an outcome-focused approach would help us to reduce the regulatory burden. Our current approach, which involves specifying and monitoring output delivery, has become very data-intensive.

33. This was appropriate in the period immediately after privatisation when the companies needed to focus on improving the condition of their assets and getting customer service to an acceptable standard – and sometimes needed considerable help to do this. But over the long term, it will not continue to deliver the best outcomes for customers in the most efficient way.

34. By focusing our regulatory efforts on those areas that pose greatest risk to delivering outcomes, we will achieve a more proportionate regulatory burden.

35. This approach would give the companies' management more control. This could be expected to reduce risk – the company would be less likely to be penalised for immaterial or minor issues relating to outputs. It would also have more opportunity to outperform if it managed its risks well.

36. Focusing on outcomes would provide scope for a simpler approach to accountability and incentives, with the companies incentivised to achieve a few outcomes, rather than to deliver long lists of outputs.

37. But there may be an element of 'rougher justice' for the companies. Because outcomes are less under company control than the delivery of outputs, the companies may experience pain or gain (that is be penalised or rewarded) as a result of factors not entirely within their control. As the economic regulator for the sectors, we would clearly need to exercise our judgement on such matters.

[1] Allocative efficiency means that resources are used where they are valued most by society.
[2] Dynamic efficiency is where different ways of producing a product are found, enabling the price to be reduced.

38. Moving to an outcome-focused approach would require a cultural change across the wider water and sewerage sectors. The fact that we have specified outputs in our price control determinations has given the companies clarity and certainty over what they needed to do. They are clear about the outputs they must deliver and delivering these outputs is largely within their control. They are also clear about what will happen if they do not deliver. We recognise that some companies have welcomed this clarity and certainty.

39. Our current output-focused approach has also provided clarity to other regulators, particularly the Environment Agency and the Drinking Water Inspectorate, as to how legal standards on environmental and water quality standards will be met. It has provided assurance that the companies can recover the costs of those specific means of meeting those standards from customers through regulated prices.

40. We do not think that moving to a more outcome-focused approach will have a negative effect on the environment and drinking water quality, especially if overall compliance with legislation (and other standards) is included as an outcome. Rather, it will incentivise the companies to find the best way of achieving compliance. A shift to a more outcome-focused approach on our part may see the companies need to engage in a more continuous dialogue with the Environment Agency and Drinking Water Inspectorate, proposing new approaches to meeting standards as they become known.

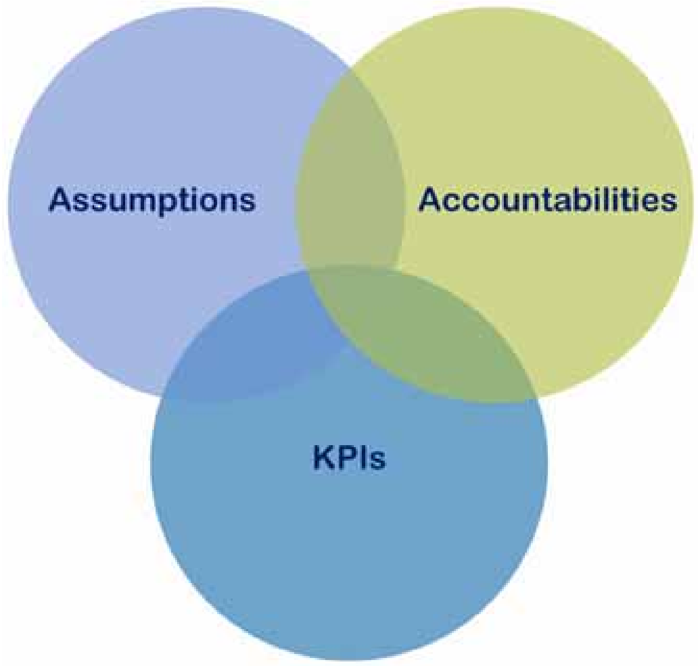
4. What might an outcome-focused framework for accountability look like?

41. We can use inputs, outputs and outcomes in different ways in setting price limits. Broadly, we can:

- use them as assumptions that will help us determine price limits;
- specify them as things that we will hold the companies to account for achieving or delivering (that is, the company will experience reward or penalty depending on delivery); or
- monitor them on the basis that they will provide us with the information that we need to do our job.

42. These uses are not mutually exclusive. There may be things that we use as assumptions that we also want to hold companies to account for, or that we also wish to monitor. The diagram below illustrates this.

Figure 2 Uses of inputs, outputs and outcomes



43. In this chapter, we set out some principles that we could use in applying a more outcome-focused approach to regulation. We discuss the different uses of inputs, outputs and outcomes in developing a framework to govern a more outcome-focused approach. In particular, we discuss accountabilities in detail. This is because we consider that these are more likely to drive company behaviour directly and so be most affected by a move to a greater focus on outcomes.

44. The diagram below illustrates the high-level framework that we are proposing, where we hold the companies to account for and incentivise the efficient delivery of outcomes.

Figure 3 An outcome-focused approach to price limit setting

45. Using a risk-based approach, we would only hold companies to account to deliver specified outputs if we considered there to be particular risks (such as a poor track record of delivery or little evidence of good customer engagement). We would continue to use outputs and inputs to some extent as assumptions in determining revenue requirements. We would develop key performance indicators (KPIs) to help us monitor the companies' performance with a focus on outcome delivery.

Principles of an outcome-focused approach

- An outcome-focused approach could be underpinned by a number of principles.
- As a default position, incentives would relate to the delivery of (or contribution to) outcomes.
- Incentives would only relate to delivering outputs or inputs (or to performance against KPIs) where:
  - we had reason to consider delivery of an outcome to be high risk;
  - incentivising that output or input (or KPI) would significantly reduce the risk of delivery of the outcome; and
  - this was consistent with our risk-based framework.
- To the extent that we collect and use information on inputs and outputs (for example as assumptions and/or KPIs) these must be linked to the delivery of an outcome.
- The companies should determine their outcomes based on a good understanding of what their customers and wider society value. This will be informed by companies' customer engagement.

4.1 Accountability

46. When we say that we "hold companies to account" for delivering something, we mean that our regulation results in the companies receiving reward or penalty depending on whether or not they deliver. The reward or penalty may be financial, reputational or procedural.

47. We also provide incentives for the companies to deliver efficiently, by allowing them to recover what we consider to be the efficient cost of delivery. In this way, they gain by being more efficient and suffer by being less efficient. We discussed the use of these different tools in our discussion paper on incentives.

48. Price limits are an important tool by which we hold the companies to account for delivering what their customers need, want and are willing to pay for, and by which we incentivise them to do so efficiently[3]. We would not expect to hold the companies to account for delivering something, or delivering it in a particular way just because we have assumed they will do this for the purpose of determining the revenue requirement. If we are holding a company to account for something, we will need to know whether or not it has delivered. But this does not necessarily mean that we need to use KPIs (or create any ex ante framework) to monitor its delivery.

49. Adopting an outcome-focused approach would result in significant changes in what we hold the companies to account for. To date, we have used price limits to hold the companies to account for delivering outputs. At the 2009 price review (PR09), the outputs we specified were largely driven by the outcomes that the companies had identified in their strategic direction statements. But rather than holding the companies to account through the price review for delivering these outcomes, we focused on the outputs.

50. For example, at PR09 the outputs we identified included the following.

- Maintaining/restoring serviceability.
- Schemes to reduce instances of sewer flooding.
- Energy generated from sewage sludge processing.
- Meeting target headroom in all water resource zones.
- Maintaining leakage at a sustainable economic level.
- Meeting water efficiency targets.
- Meter installation in line with legal obligations.
- Connecting new properties to the water and sewerage network.
- Expanding the sewerage network and sewage treatment capacity as required to accommodate new demand with no deterioration in service levels.
- Schemes to comply with water treatment quality standards.
- Schemes to comply with environmental quality standards.
- Schemes to comply with the Security and Emergency Measures Direction.
- Stand-alone renewable energy schemes.

[3] We have other tools beyond price control reviews to hold the companies to account. These include the guaranteed standards scheme (GSS), which results in the companies making compensation payments to customers if they have not delivered specified standards of service. These other tools are outside the scope of this discussion paper. But we are considering them as part of our regulatory compliance project.

51. In the past, we have monitored delivery of these outputs very closely, often at a scheme-specific level. We have made shortfall adjustments against the companies that have not delivered. For example, at PR09 we made shortfall adjustments to two companies for failing to deliver stable serviceability (one for water infrastructure, one for water non-infrastructure). And we made logging up and down adjustments ranging from £1 million to more than £130 million to more than 40 quality enhancement schemes covering 14 companies.

52. We want to move away from using price limits to hold the companies to account for delivering outputs or inputs. Using the examples of outcomes we described on page 8, we could hold the companies accountable for:

- delivering reliable drinking water and sewerage services;
- providing safe drinking water;
- providing sewerage services consistent with maintaining public health;
- delivering customer satisfaction;
- delivering sustainability (for example, good quality water environment and sustainable use of water resources);
- reducing carbon emissions;
- delivering fair, transparent and acceptable bills for customers;
- complying with legal requirements; and
- delivering sustainable water resources.

53. Holding the companies to account for delivering – or for contributing to delivering – these outcomes would allow us to take a simpler approach that would be clearer to the companies and their Boards. It would encourage the companies to manage relationships with their customers proactively.

54. But this could result in situations arising where the companies think they are being unfairly penalised for events that they consider beyond their control. For example, we may hold them to account (that is, use regulatory intervention to reward or penalise) for customer satisfaction. This may not be wholly within the company's control if, for example, a severe drought causes interruption in supply.

55. We could take the view that in a competitive market (the effects of which we seek to mimic) a company's customers would expect it to ensure service delivery and maintain a good relationship with them in the face of any problems. Co-responsibility for delivering outcomes might also encourage the companies to work more effectively with stakeholders to identify shared approaches.

56. Similarly, an outcome-focused approach could result in situations where the companies are rewarded for outcomes that have been delivered because of factors beyond the company's control. This could be seen as a form of 'windfall gain' for the company.

57. In a competitive market, if a company enjoyed a windfall gain, competitive pressure would see that gain returned to customers. We could take the same approach. But if we were to do so, it would create complexity, and this could dilute the power of the incentive. So, we need to ensure that our approach limits the scope for the companies to define and/or measure outcomes in such a way as to increase the potential for windfall gains.

58. In developing a more outcome-focused approach to regulation, we need to consider a number of issues.

- **The level at which outcomes should be set.** For example, at different stages of the value chain (as part of disaggregated price controls), company-level, England, Wales or England and Wales (it may also be appropriate to set different outcomes at different levels or for different types of customer).

- **The number of outcomes to be set.** While they would need to reflect the needs and wants of customers and wider society, there should be sufficiently few outcomes to allow a clear incentives framework to flow from them. And the outcomes would need to be consistent if they were set at different levels.

- **Who should be involved in identifying outcomes and what would the process be?** We think that the companies should own the relationship with their customers, and we would expect their engagement with their customers to have an important role in determining the outcomes they seek to deliver.

- **The link with customer engagement.** We recognise that the companies will also need to deliver outcomes that have a value for society beyond their own customers (for example, environmental improvements, which involve significant externalities). There is a link between this and the level at which outcomes should be specified.

- **The extent to which the companies should be incentivised to deliver outcomes (in absolute terms) or the extent to which an improvement has been achieved in respect of an outcome (relative to previous performance), or the contribution they have made to delivery of an outcome.**

- **Whether we should incentivise delivering outcomes across a control period or on a yearly basis, or both.**

- **Whether and to what extent we should adjust outcome-focused incentives to take account of factors beyond company control (and what those factors might be).** This links to the question of risk allocation (as set out in our discussion paper on risk).

- **How best to incentivise the companies to balance outcomes between the short and long term.** This includes how best to take account of inter-temporal externalities (for example, in relation to serviceability, adapting to climate change, or resilience more generally).

4.2 Assumptions

59. In our price reviews, we determine the revenue that an efficient company would need to provide regulated services. Our price controls permit the companies to recover this revenue through the prices of their regulated services. To do this, we need to make certain assumptions about the outputs that a company should deliver and the inputs it will need to deliver them. These assumptions reflect the companies' business plans and the challenges we have made to them based on our expertise and other sources of information and our expertise.

60. At PR09, for example, we made assumptions about:

- the costs of first-time sewerage schemes;
- metering costs;
- the costs of energy, pensions, bad debt, business rates and Environment Agency charges;
- the costs of sewer flooding schemes;
- the costs of new connections;
- developer contributions;

- the costs of enhancing sewage treatment capacity; and
- the costs of compliance with the Security and Emergency Measures Direction.

61. We based these assumptions on the companies' business plans, but we challenged them using:

- the cost base;
- operating expenditure efficiency modelling;
- reports from the companies' reporters;
- information on actual expenditure in the companies' yearly regulatory returns to us (the 'June returns'); and
- unit costs.

62. In future, the nature of the assumptions we will need to make will depend on the form of the price control (for example, revenue or price cap) and what the revenue requirement we are determining is for. The assumptions will also depend on the way in which we assess costs, which we are also reviewing. But we will continue to need to make some assumptions about outputs and inputs and would expect these to reflect the companies' business plans and the challenges we have made to those plans. We are considering the way we make those challenges as part of our future price limits project on cost assessment.

63. But this will not mean that we need to monitor whether an assumption has proved correct. Nor will it mean us holding the companies to account for delivering in line with that assumption, or developing a KPI to show whether an assumption or set of assumptions has been borne out in reality.

4.3 Key performance indicators (KPIs)

64. We could use KPIs to tell us whether the companies are delivering the outcomes that their customers and society value. These need not reflect the assumptions that we have made in setting price limits. But they should indicate the extent to which the companies have or are likely to deliver those outcomes. Some KPIs may be common across the companies, while others may be company-specific, for example where a company has a poor performance record in an important area of service provision.

65. We could incentivise and hold the companies to account for performance against some or all of a set of KPIs through the price controls. Or we could simply monitor performance against KPIs as a way of informing any decisions we may take on whether to delve deeper into a particular company or a particular issue across the sectors.

66. Through our regulatory compliance project, we are developing a risk-based framework that we will use to inform the way we regulate in future. This will include the way in which we set price limits and how we monitor compliance with those limits and against the incentives we set. As part of this, we are working with the companies to develop a set of KPIs and consider how best we should use them in regulating.

67. If we were to incentivise the outcomes we listed on page 8, KPIs that might provide useful indicators of whether these outcomes were being delivered (and if not, why not) could include:

- water consumption per head;
- leakage;
- environmental and drinking water quality compliance;
- accurate and timely billing;
- speedy and effective complaint handling;
- effective drainage; and
- resilience to flooding.

4.4. Links to cost assessment and cost recovery

68. In moving to a more outcome-focused approach, one of our aims is to increase the scope for the companies to find new and better ways of efficiently delivering what customers and society value. As well as considering the implications of this approach for the way in which we use inputs, outputs and outcomes in price limit setting, we also recognise that this aim has implications for our approach to cost assessment and cost recovery.

69. Some companies have told us that they are discouraged from adopting some solutions – particularly more operating expenditure (opex)-based ones – because they are allowed a return on capital expenditure (capex) and not on opex. They also think that the way we assess opex efficiency puts them at a disadvantage. They have cited this as a barrier to the development of water trading, some approaches to catchment management and water efficiency measures.

70. We are considering these issues as part of our future price limits work on cost assessment and cost recovery. We will publish more information on this subject in the spring.

4.5 When to take a more interventionist approach?

71. While we think that adopting a more outcome-focused approach should allow us to simplify and streamline the way in which we regulate and focus more on what really matters, we also need to consider the circumstances under which we would take a more interventionist stance.

72. So, if we considered there to be a high risk that a particular company would not deliver outcomes, or that delivering a particular outcome (or particularly important aspect of an outcome) was at risk, we could decide to monitor the company or its performance against certain KPIs.

73. As an example, we could take such an approach where:

- a company has a poor track record of delivering for customers; or
- we are not convinced that a company has the capacity (knowledge, systems, process and management capability) to deliver for its customers or society.

74. In such circumstances, we would need to consider what input, output or other KPI we should monitor to hold the company(ies) to account in order to reduce the risk surrounding delivery of the relevant outcome(s).

5. Conclusions

75. We think that there is much to commend in an outcome-focused approach, particularly given the benefits of a risk-based approach and the need to reduce the regulatory burden. But we need to consider carefully:

- how we define outcomes (without replicating the list of constituent outputs that we have now); and
- how we decide which companies are performing well and which are not, and how we relate this to the extent to which we challenge the companies' business plans.

76. We would also need to consider the impact this approach would have on risk and incentives. The risk associated with delivering outcomes may be different from the risk of delivering outputs, and we need to understand the consequences of this.

77. Adopting such an approach would require significant cultural change across the wider water and sewerage sectors, from the companies and their regulators to customers and their representatives, Government and investors. So, for example, we would presume that if a small and detailed scheme had been included in a company's business plan, then it would be delivered, unless a better or more innovative solution were found to contribute to the delivery of the agreed outcomes that customers and wider society want.

78. If non-delivery of an outcome meant failure to comply with a legal obligation, we would support action being taken by the appropriate quality regulator. All regulators would need to share intelligence on company performance in delivering the agreed outcomes. Above all, such an approach would require of a more mature, honest and grown-up relationship between regulators and regulated as might reasonably be expected more than 20 years after privatisation.

Table 2 Pros and cons of moving to an outcome focused approach

Pros	Cons
• Supports regulatory compliance philosophy of proportionate, targeted, risk-based regulation. • Encourages the companies to engage more effectively with their customers to identify what they want. • Encourages the companies to work with stakeholders to identify shared approaches to meeting outcomes. • Encourages more innovative, flexible, sustainable and long-term solutions. • More certainty for the companies that perform well. • More scope for the companies to manage their own businesses with less risk of being held to account for failure to deliver low-level outputs. • More allocative and dynamic efficiency.	• Less certainty for the companies – they could no longer take reassurance from delivering a list of outputs. • Outcomes might not be achieved, despite a company's best efforts ('rougher justice'). • Less clarity for quality regulators and Government as to how standards will be met. • Need to deal with inter-temporal issues (that is, ensuring that short-term profits are not made at the expense of long-term performance).

6. Next steps

79. We will publish a consultation on our proposed framework for setting price limits in 2014-15 and beyond in autumn 2011, and we will produce our final framework document in spring 2012. That document will set out our aims for price limits in 2014-15 and beyond, the principles we will use in setting them, and, at a high level, the tools we will use.

80. To help us formulate how we will deal with outcomes, we invite you to submit your views on the issues set out in this document. The following questions may help you to do this.

1. Do you agree that an outcome-focused approach is the best way forward for water regulation? What are the main pros and cons of holding the companies to account in this way?
2. What would the key success factors be were we to adopt such an approach?
3. How should outcomes be determined? How would we know when they had been delivered? What should be the relationship between inputs, outputs and outcomes?
4. How would a risk-based approach work alongside a greater focus on outcomes? How should we decide whether, when and in relation to what we needed to look at outputs or inputs?
5. How should we incentivise the companies to deliver outcomes? How should we deal with the reward or penalty that a company would experience because of factors outside its control?
6. How would an outcome-focused approach differ between different stages of the value chain? How could it work within a retail price control? How could it work within a wholesale price control?
7. How would a more outcome-based approach on our part affect other regulators? How would other regulators' approaches affect the extent to which we could or should move to greater focus on outcomes?

81. We welcome feedback on these and other issues. If you would like to contribute to this debate, please contact Gordon Frazer, Future Price Limits Project Manager (gordon.frazer@ofwat.gsi.gov.uk) by 31 May 2011.

Appendix 1: Our approach to setting inputs, outputs and outcomes to date

Since privatisation, our principal concern has been to incentivise the companies to:

- understand the condition of their assets and take the action required in order to deliver a safe, reliable water supply to customers; and
- carry out the environmental improvements needed to comply with increasingly stringent legal standards (such as those resulting from the EU Bathing Waters Directive, or the EU Urban Waste Water Treatment Directive).

We have wanted to encourage the companies to identify what they need to do to generate these improvements, and we have wanted to be sure that they deliver the schemes that customers have funded through their bills.

This has led us to take an output-focused approach to regulation. We have been clear, through our assessment of the companies' business plans (and at PR09, with their strategic direction statements) that the outputs the companies proposed to deliver would achieve results that their customers and society would value. But in setting price limits, we have allowed the companies to recover the cost of specified schemes (or 'outputs').

The outputs for which we have allowed companies to recover costs from their customers reflect:

- research into what customers want and are willing to pay for;
- their legal obligations;
- the views of the quality regulators (the Environment Agency, the Drinking Water Inspectorate, Natural England and the Countryside Council for Wales);
- the policy outcomes sought by Government (as set out in Defra and the Welsh Assembly Government's social and environmental guidance); and
- the need for a financeable investment package.

The views of the companies' reporters and the refinements suggested by our detailed monitoring have also fed in to our output specification.

We list and track delivery of these outputs, of which there are many. At the last price review, a medium-sized water and sewerage company might have had as many as 130 outputs for its quality programme alone.

If the company delivers the output at a lower cost than what we allowed in our final determinations, it enjoys the benefits of that outperformance until the next price review (or for another specified period, depending on the cost). If the company does not deliver the output or delivers it late, we make a shortfall adjustment at the next price review to claw back the net present value of the benefit to the company resulting from the additional revenue.

Sometimes, an agreed output ceases to be relevant, because, for example, the appropriate quality regulator no longer requires it. If this is material, then we use the 'logging down' process at the next price review to return the amount we had assumed it would cost the company to deliver the output to customers. We deal with any material new outputs that the companies are required to deliver during the price review process in a similar way with the 'logging up' process. If very significant changes are required (that is, more than 10% of service turnover), the companies may apply for an interim determination of their price limits (IDoK) within the price review period.

Traditionally, we have set lower-level (that is, detailed, scheme-specific) outputs for quality enhancements, where they relate to specific investments to deliver compliance with legal environmental or drinking water quality obligations, many deriving from EU legislation. This reflects several factors, including the approach of the quality regulators (for example, the Environment Agency's National Environment Programme) and the relative ease with which the companies outperformed in this area in the past.

In capital maintenance, we have focused on the quality of the companies' data and the evidence of their understanding of their assets to address the asymmetry of knowledge between regulator and regulated (which can give rise to unearned outperformance). This has resulted in a higher-level serviceability output, albeit supported by 21 low-level public health, environmental and customer service indicators.

At present, we specify outputs that are:

- directly related to the provision of water and sewerage services (for example, those intended to achieve compliance with drinking water standards and uninterrupted service provision);
- indirectly related to provision of water and sewerage services (for example, those relating to accurate and timely billing and complaint handling); and
- concerned with wider policy delivery (for example, those relating to compliance with wider environmental standards and relevant social policies, such as the WaterSure tariff).

Some of these outputs concern compliance with specific existing regulations as required (and enforced) by other regulators, rather than reflecting directly what customers want. Others are intended to meet policy objectives sought by Defra or the Welsh Assembly Government as set out in their published social and environmental guidance to us. Others – such as levels of service – reflect more directly what customers want.

While we still set inputs in some areas, our current approach is typified by setting a wide range of outputs. We use inputs mainly to build up the assumptions behind the revenue that we allow the companies to recover when we set prices.

The current hierarchy of inputs, outputs and outcomes is represented in the spreadsheet that we have published alongside this document. This shows:

- the outputs we currently set, categorised by broad outcome (for ease of representation no multiple outcomes have been included);
- where those outputs occur in the value chain; and
- whether currently we hold the companies accountable for delivering those outputs, monitor progress by indicators or simply make assumptions relating to them for price setting purposes.

It also shows the complexity of the current approach, particularly in terms of accountabilities.

Appendix 2: Some limitations of our current approach to setting inputs, outputs and outcomes

A2.1 Complexity

The way we set outputs has become increasingly complex and time-consuming for us, the companies and the quality regulators.

This was confirmed in our own report, 'Lessons from our approach to setting price limits (PR09)', which we published in December 2010. This document cited concerns from stakeholders that the price review process has become increasingly burdensome and complex (and, as a result, less transparent) with ever-expanding data requirements and over-detailed analysis unrelated to risk. Stakeholders considered three years' work for a five-year price review period disproportionate.

At each price review, we have set new outputs to help deliver the multiplicity of outcomes sought by customers, regulators and the Government. For example, at PR09 we included outputs for delivering opex savings from new renewable energy schemes for the first time, as well as resilience outputs that require a reduction in the risk of service failure caused by natural hazards.

Setting detailed outputs (some driven by customers, some by the quality regulators and some by Government) risks blurring the responsibilities of all concerned. Stakeholders sometimes criticise the current system for lacking clarity on the relationship between regulatory outputs and Government policy aims, and who is responsible for which decisions.

As the complexity has grown, so has the attendant risk of unintended or undesirable consequences and conflicting outcomes. For example, European legislation on drinking water quality drives an ever-increasing treatment of raw water. This can require more energy-intensive processes or new assets to be constructed, which we typically then set as outputs to be delivered.

But operating these new assets will lead to a net increase in greenhouse gas emissions. This contradicts the UK Government's target of reducing the UK emissions compared with 1990 levels. While the UK water industry does not currently have specific greenhouse gas emissions targets itself, it must mitigate its emissions wherever possible. Setting the new assets as outputs may distract attention from the need to find more sustainable solutions.

Sometimes we have to find new mechanisms or outputs to moderate the impacts of others. For example, at PR09, we introduced the revenue correction mechanism in part to remove the disincentive (that is, the reduced revenue) associated with promoting water efficiency in the home.

While there are mechanisms for dealing with changes in obligations or in customer preferences within a price review period, a system based on detailed outputs does not cope easily with many such changes. They tend to add to the complexity and reduce transparency.

Setting detailed outputs also tends to fuel detailed monitoring, with the danger that real issues are lost in a sea of data. In turn, this monitoring tends to feed evermore detailed outputs at the following price reviews, as adjustments are made in the light of experience. Our regulatory compliance project is aiming to put monitoring work on a more risk-based footing and break this cycle of complexity.

A2.2 Short-term focus and company culture

Our lessons learned report from PR09 also cited concerns about the short-term focus arising from the setting of detailed outputs at the beginning of a price review. There is a danger that such an approach encourages short-term thinking by focusing attention on the immediate five-year period rather than the longer term.

This is because the outputs we set can – and sometimes do – become outcomes. This has the consequence of focusing the companies on meeting the regulator's requirements, rather than responding to customers' concerns or wider challenges (such as droughts and floods) that arise within the price review period. It means that the outputs, in effect, may become barriers rather than enablers, with the danger that they reinforce the preference for risk-averse, short-term capital investment fixes over more sustainable solutions that may involve working with stakeholders or doing things differently.

It has also been suggested that setting detailed outputs perpetuates a passive and task-oriented culture among the companies by limiting management discretion and distracting their attention from what customers really want. So, they may wait for the regulators to tell them what to do rather than:

- owning their programmes;
- managing their risks; and
- developing their own performance and reporting frameworks that cover the things they believe are important to their current and future customers.

Focusing on outcomes (including those for which they are not solely responsible) rather than outputs could encourage the companies to engage better with their stakeholders and customers to identify shared approaches. Examples might be protecting water quality through more effective catchment management, or engaging on water efficiency in areas where resources are scarce. This may represent a very different way of working from the traditional output and capex-focused approach.

A2.3 Innovation

The more we specify detailed outputs, the more we risk limiting the scope for the companies to find more efficient or innovative ways of doing things. This is particularly the case if detailed output specifications lead to direction over inputs.

For example, if we specify that a company must achieve at least a particular level of frequency of use restrictions, it may decide to do this in one of several ways. It could:

- build a new reservoir;
- enter into a bulk supply agreement with another company;
- work with customers on water efficiency; or
- do more to address leakage.

But if we specify capital expenditure on the reservoir as the solution, we remove the scope for pursuing these alternative approaches.

This is also relevant to logging down, the mechanism by which money can be returned to customers where outputs are no longer necessary. This has required us to attempt to distinguish between real innovation on the one hand, for example where specific inputs or outputs have become redundant because of other, innovative actions taken by the companies (for which they feel they should be rewarded), and easy company outperformance claims on the other.

A2.4 Reflecting risk and rewarding good performance

The current regulatory framework is anchored in the need to incentivise improved performance across companies that were performing poorly when they were privatised. While performance has generally improved across the sectors, we still tend to treat all the companies alike in terms of defining detailed outputs that they must deliver.

There would seem to be a case for reflecting the relationship between prescription and performance record in the way we deal with the companies. For example, we could take a less prescriptive approach to companies that are performing well, engaging with their customers and other stakeholders and thinking strategically. On the other hand, we could be more prescriptive with those companies that are not yet demonstrating that they are doing these things.

References

Ofwat publications

'Future water and sewerage charges 2010-15: final determinations', Ofwat, November 2009.

'Beyond limits – how should prices for monopoly water and sewerage services be controlled?', Ofwat, July 2010.

'Allocating risk and managing uncertainty in setting price controls for monopoly water and sewerage services – a discussion paper', Ofwat, October 2010.

'The role and design of incentives for regulating monopoly water and sewerage services in England and Wales – a discussion paper', Ofwat, October 2010.

'The form of the price control for monopoly water and sewerage services in England and Wales – a discussion paper', Ofwat October 2010.

'The treatment of regulated and unregulated business in setting price controls for monopoly water and sewerage services in England and Wales – a discussion paper', Ofwat, October 2010.

'Involving customers in the price-setting process – a discussion paper', Ofwat, October 2010.

'Lessons from our approach to setting price limits (PR09)', Ofwat, December 2010.

Related information

'Changing course', Severn Trent Water, April 2010.

'Changing the bathwater: a discussion paper on water policy', Indepen, May 2010.

Response to the call for evidence to the Ofwat review, Consumer Council for Water, 29 October 2010.

Response to Ofwat's discussion papers, Water UK, 27 January 2011.

'Future price limits – response to the discussion papers', Portsmouth Water, January 2011.

Strategic direction statements from Anglian Water, Cambridge Water and Severn Trent Water.

Ofwat (The Water Services Regulation Authority) is a non-ministerial government department. We are responsible for making sure that the water and sewerage sectors in England and Wales provide customers with a good quality and efficient service at a fair price.

Ofwat
Centre City Tower
7 Hill Street
Birmingham B5 4UA

Phone: 0121 644 7500
Fax: 0121 644 7699
Website: www.ofwat.gov.uk
Email: enquiries@ofwat.gsi.gov.uk

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